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# Protection of Nuclear Power Plants Against Terrorist Attacks from the Air

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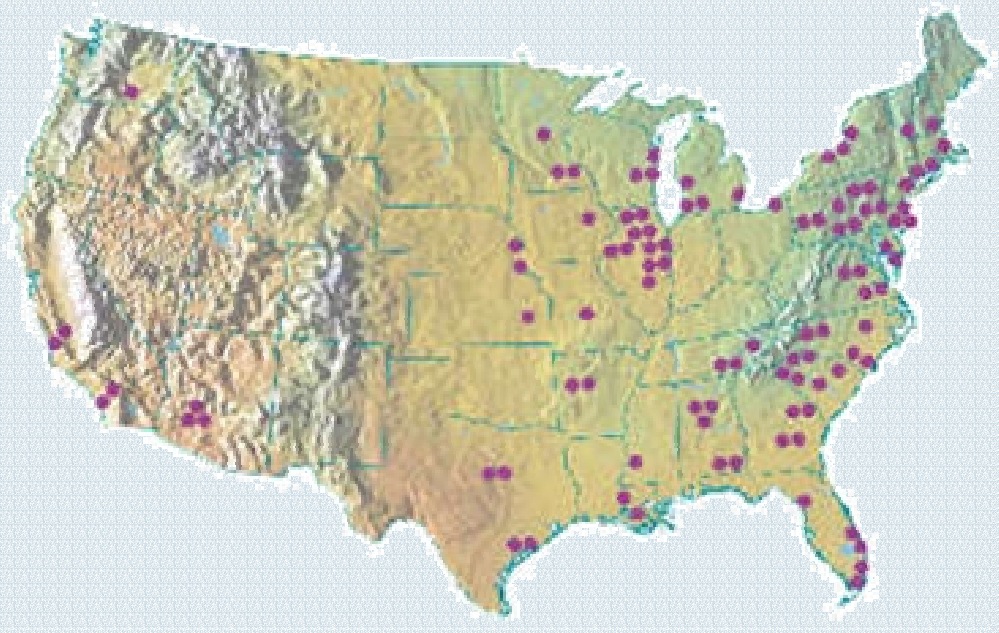
# Scope of Presentation

Present a viable solution for active Air Defense of NPS.



- Vulnerability against airborne threat
- An active defense system
- Possible deployments
- Sequence of events

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# Assumptions

- NPS are vulnerable to Terrorist Attacks, these may create core melt-down
- Passive protection is possible but time consuming and costly
- High jacked civil Airliner or commandeered Military Aircraft/weapons are used.

 

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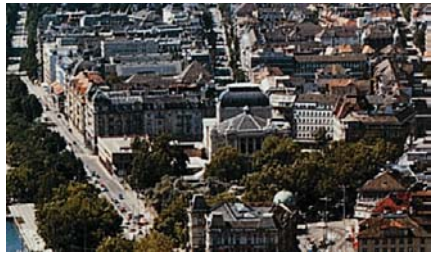
# Protection of High Value Assets ...

## ... is the core activity of Oerlikon Contraves









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# Typical Nuclear Power Plant


1 Containment

2 Cooling Tower

3 Utilities, Command Center

4 Power Distribution

## Destruction of 1 only causes Dramatic Damage

 

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# Skyshield Fire Unit

 

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# Skyshield Features & Performance

- Automatic Search and Threat Evaluation
- Precision Target Trajectory measurement
- Evaluation of target impact point
- Direct control of rapid fire weapons
- High explosive incendiary any ammunition
- Data storage and transmission

 

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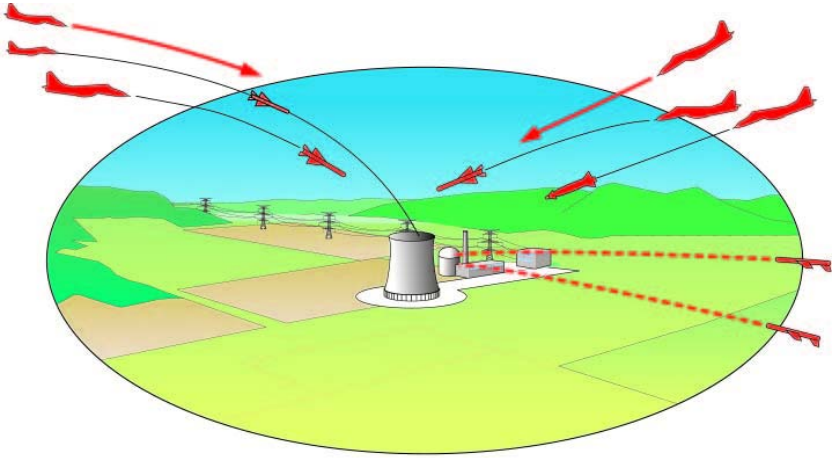
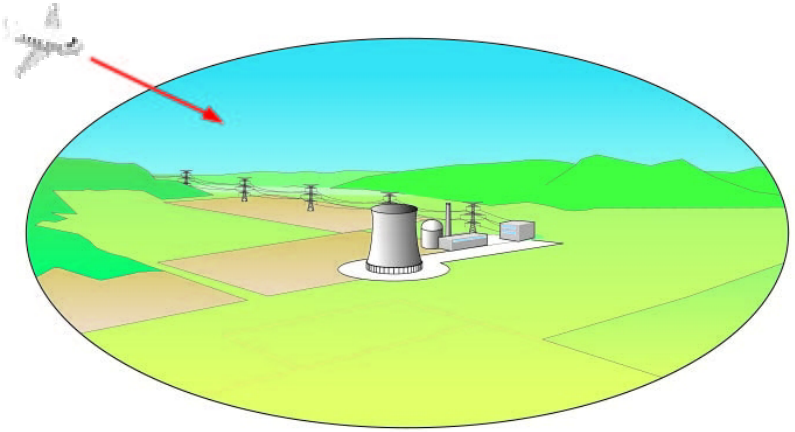
# Different Threats and Responses

## „Military“



- Total Spectrum of Aerial Threats
- High Density
- Destruction at Long Range
- Prepared, Exercised Deployment
- Within Scope of Joint Air Warfare
- Manned by Troops

## „Terrorist “



- Airliners
- Rare (very rare)
- Destruction at shortest Range
- High Automation
- Linked to ATC
- Unmanned

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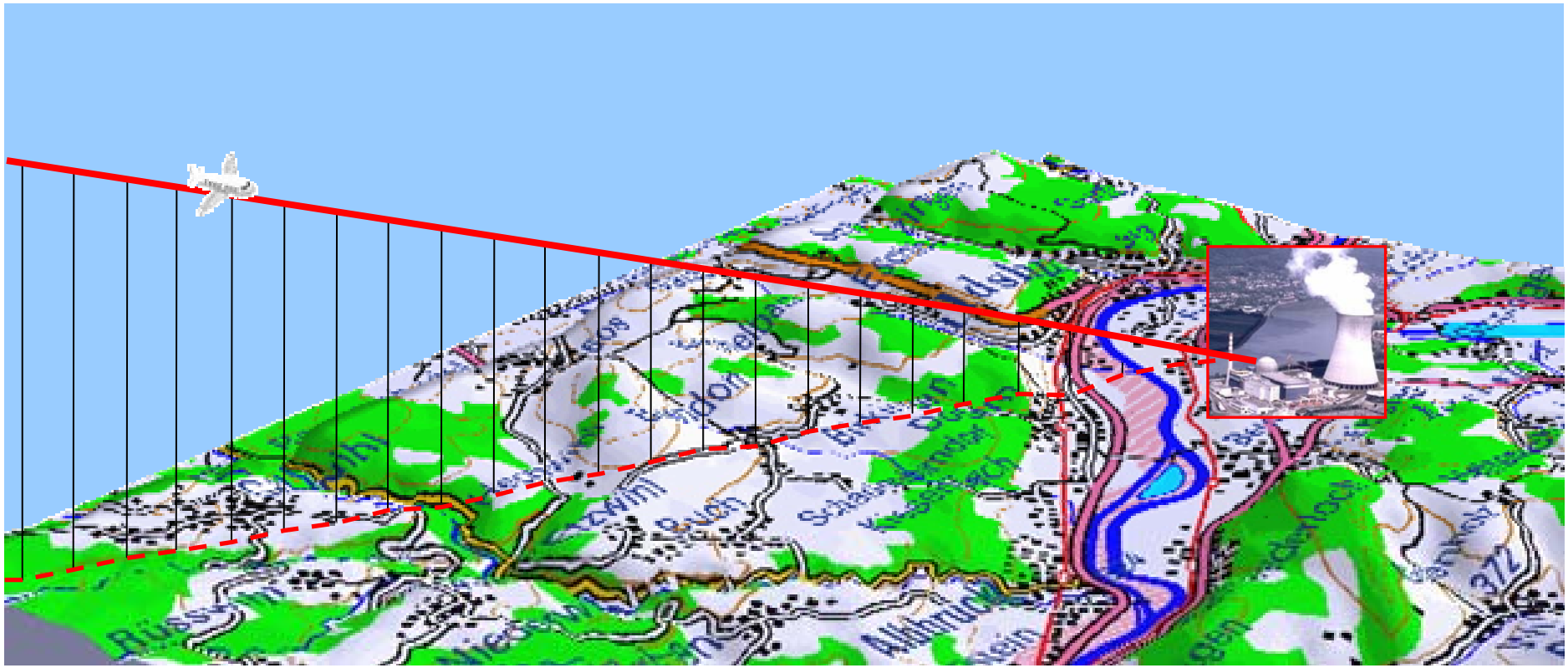
# Threat Scenario



- High-Jacking of Airliner
- Large Aircraft, Large amount of Fuel
- Direct Path to Object
- Several Minutes of Warning after High-Jack

# “Last Moment” Engagement by Air Defence

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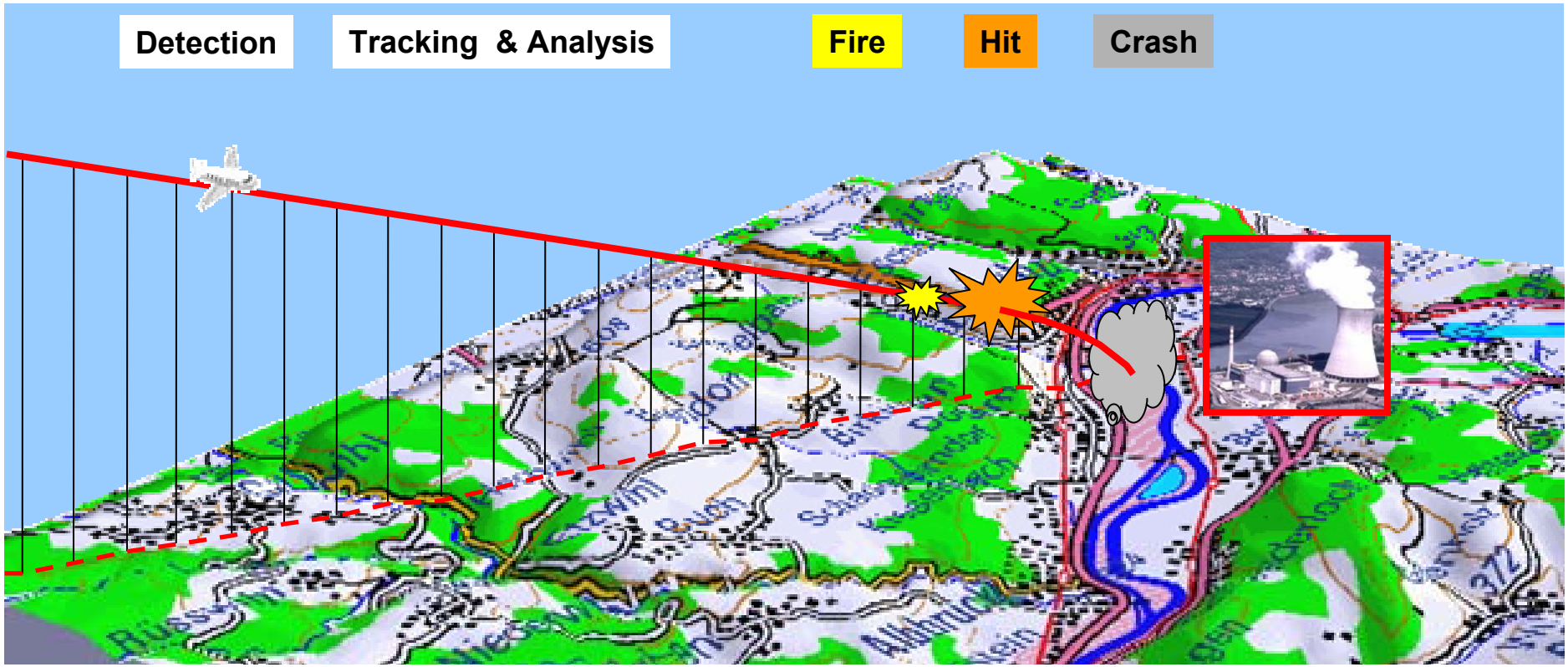


- Intent Clearly Established
- Decision to Fire 10 - 12 Seconds before Impact
- Hit 8 -10 Seconds before Impact
- Immediate disintegration of Aircraft

 

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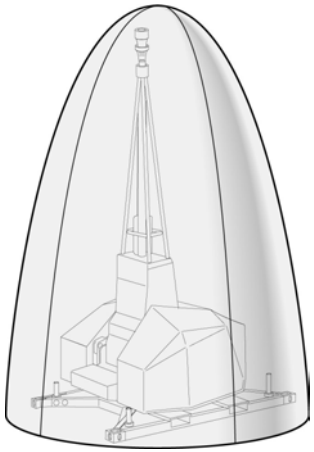
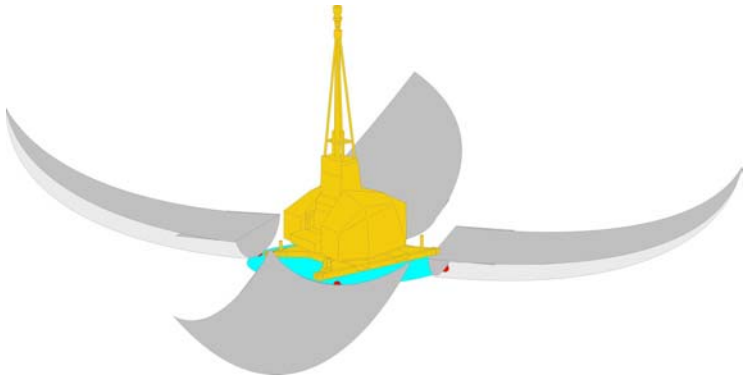
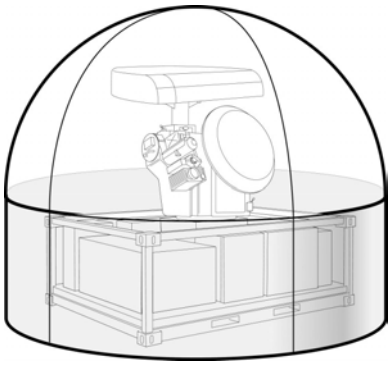
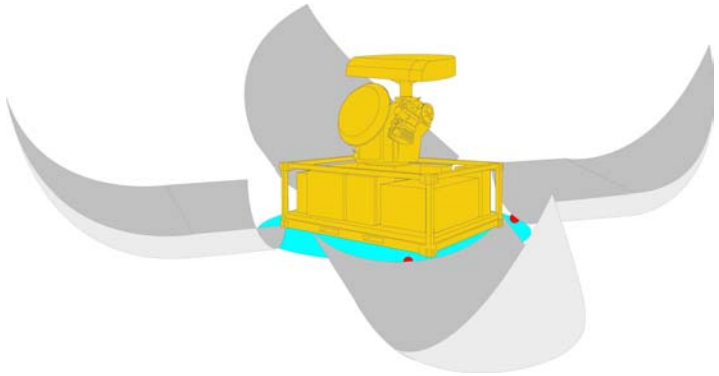
# Protection and Camouflage









- Weather Protected
- Hardware Integrity (Inert Gas)
- In Standby Mode
- Battery Powered
- Rapid Reaction
- Camouflage as Part of the Utility

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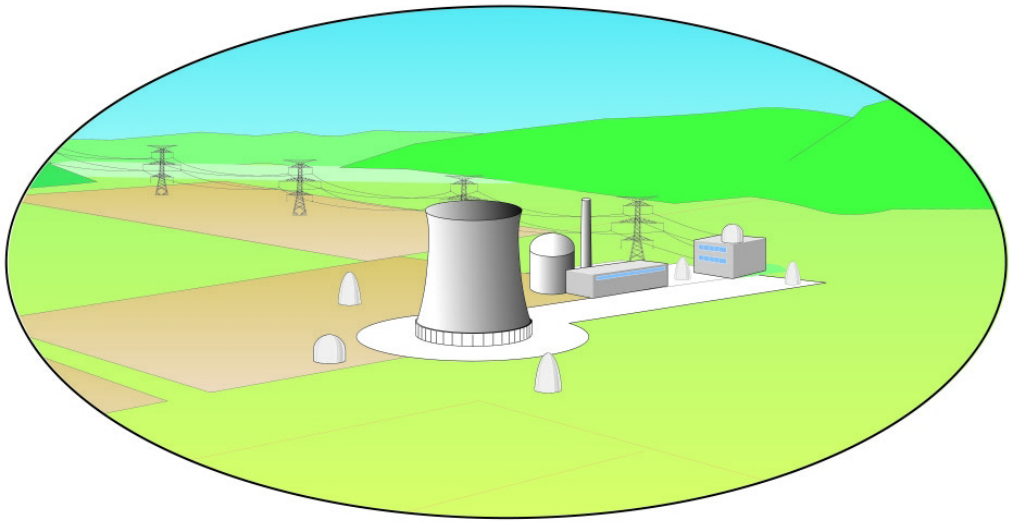
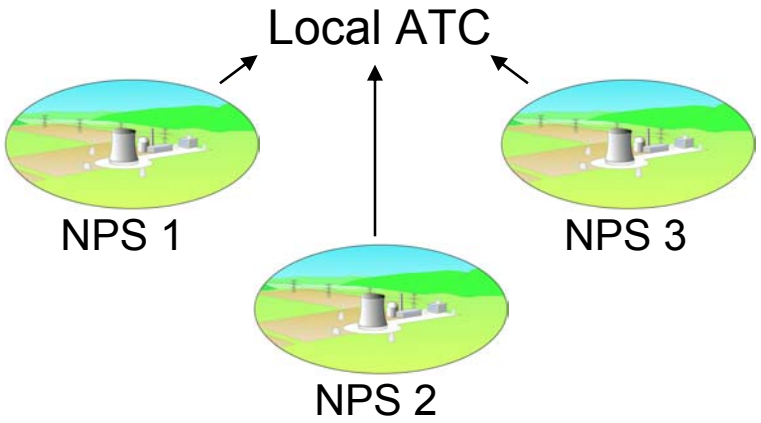
# Deployment



- Protected units
- „Instant“ readiness
- Deployed in or near plant
- Control integrated in NPS control center

# Alert Center and Engagement Control




- Local Information
- Central Decision
- Reserved Decisions
- Fixed Criteria
- Real-Time Data and Video
- „CNN-proof“

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# Sequence of Events / Decisions